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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/856,657	05/24/2001	Yukihiro Sumida	1035-324	3157

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1100 North Glebe Road 8th Floor
Arlington, VA 22201-4714

EXAMINER

CHOWDHURY, TARIFUR RASHID

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 12/31/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/856,657

Applicant(s)

SUMIDA ET AL.

Examiner

Tarifur R Chowdhury

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on preliminary amendment filed on 05/24/01.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 and 24-59 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 21,22,27-29, 33-43,46,48,49 and 51-59 is/are allowed.
- 6) ☒ Claim(s) 1,3,6,8-12,16,24-26,30-32,44,45,47 and 50 is/are rejected.
- 7) ☒ Claim(s) 2,4,5,7,13-15 and 17-20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5,6. 6) ☐ Other: _____

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1, 3, 6, 9 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshito et al., (Yoshito), EP 866264 A1 (provided by the applicant).

6. Yoshito discloses and shows in Fig1, a lighting system for irradiating pixels of an image display element with outgoing light, the lighting system (4) comprising:

- a linear light guiding body (19) for converting light from a light source unit (18) into a linearly emitting state; and
- a planar light guiding body (16) in which a cyclic structure for converting light from the linear light guiding body (19) into a planarly light emitting state and emitting the converted light is formed.

Yoshito also discloses a reflecting member that is formed for guiding light effectively from the linear light guide to the planar light guide and using the lighting system in a liquid crystal display device (col. 2, lines 11-50).

Therefore, it is clear that the structure of the lighting system of Yoshito is similar to the lighting system as claimed. Therefore, it would be easy for a person skilled in the art to derive the feature wherein the reflective member of Yoshito is formed in such a manner that it has its peak brightness value in the direction perpendicular to the periodic

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structure (namely the direction perpendicular to the incidence face of the planar light guide).

The fact that it is preferable for the brightness distribution in the axial direction of the linear light guide to be even would have been obvious to a person skilled in the art to optimize device performance.

Accordingly, claims 1, 3, 6, 9 and 32 would have been obvious.

7. Claims 8 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshito as applied to claims 1, 3, 6, 9 and 30 and in view of Tomohiro et al., (Tomohiro), EP 556606 A1 (provided by the applicant).

8. Yoshito differs from the claimed invention because he does not explicitly disclose the claimed angle that the cyclic direction of the structure provided on the planar light guiding body forms with respect to the repeating direction of the pixels.

Tomohiro discloses a lighting system for using in a liquid crystal display device. Tomohiro also discloses that the occurrence of Moiré fringes between liquid crystal display device and the sheet can be eliminated by making the angle (θ) with the edge of the quadrilateral sheet in the periodic direction of the periodic structure $5^\circ \leq \theta \leq 85^\circ$.

Tomohiro is evidence that ordinary workers in the art of liquid crystal would find a reason, suggestion or motivation to set the angle that the cyclic direction of the structure provided on the planar light guiding body forms with respect to the repeating direction of the pixels is within $5^\circ \leq \theta \leq 85^\circ$.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the lighting device of Yoshito such that the cyclic direction of the structure provided on the planar light guiding body forms an angle within a range of $5^{\circ} \leq \theta \leq 85^{\circ}$. with respect to the repeating direction of the pixels so that Moiré fringes between liquid crystal display device and the sheet can be eliminated, as per the teachings of Tomohiro.

9. Claims 10-12, 16, 24-26, 32, 44, 45, 47 and 50 rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshito as applied to claims 1, 3, 6, 9 and 30 above and in view of Takeshi et al., (Takeshi), JP 09-160032 (provided by the applicant).

10. Yoshito differs from the claimed invention because he does not explicitly disclose that a diffusing sheet is provided to surround the linear light guiding body.

Takeshi discloses a linear light guiding body (22) that is surrounded by a diffusing sheet (30) (Fig. 7). Takeshi also discloses that the diffusing sheet helps to obtain nearly uniform illumination all over the light transmitting part (abstract).

Takeshi is evidence that ordinary workers in the art of liquid crystal would find a reason, suggestion or motivation to modify the lighting system of Yoshito such that form a diffusing sheet to surround the linear light guiding body so that nearly uniform illumination all over the light transmitting part is obtained, as per the teachings of Takeshi.

Takeshi also discloses the feature of arranging a transparent adhesive resin between the light source unit and the linear light guide (embodiment 21), and the

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feature of forming a reflective surface on the incidence face of the linear light guide (Figs. 6-13).

Specifying the refractive index of the transparent resin between the light source unit and the light guide, thus making it an optical matching means is a common and known feature in illumination device that use light guides.

Accordingly, claims 10-12, 16, 24-26, 32, 44, 45, 47 and 50 would have been obvious.

Allowable Subject Matter

11. Claims 21, 22, 28-43, 46, 48, 49 and 51-59 are allowed.
12. Claims 2, 4, 5, 7, 13-15 and 17-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tarifur R Chowdhury whose telephone number is (703) 308-4115. The examiner can normally be reached on M-Th (6:30-5:00) Friday Off.

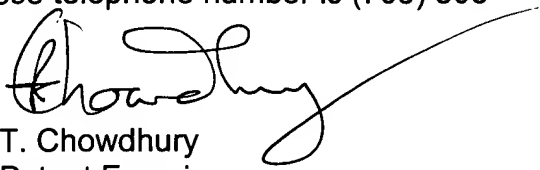
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William L Sikes can be reached on (703) 305-4842. The fax phone

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numbers for the organization where this application or proceeding is assigned are (703) 746-7005 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

TRC
December 30, 2002



T. Chowdhury
Patent Examiner
Technology Center 2800